

**MINIATURE QUADRUPOLE-ARRAY AND
PAUL TRAP MASS SPECTROMETERS
WITH MINIATURE FRONT-END GAS CHROMATOGRAPHS**

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ABSTRACT

We have developed at JPL a miniature quadrupole mass spectrometer array, and a miniature Paul ion trap mass spectrometer. Mass spectra in the range 1-300 amu will be presented from both spectrometers. We have also developed miniature front-end gas chromatograph and preconcentrator that are suitable for air and water monitoring for long-duration human flight. GCMS results for several of the SMAC gases, including formaldehyde, will be presented. Developments for the future will be outlined.